



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/786,977	02/25/2004	Atul Asthana	555255012555	4130
33070	7590	05/04/2006	EXAMINER	
JOSEPH M. SAUER				SONG, JASMINE
JONES DAY REAVIS & POGUE				ART UNIT
NORTH POINT, 901 LAKESIDE AVENUE				PAPER NUMBER
CLEVELAND, OH 44114				2188

DATE MAILED: 05/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

BEST AVAILABLE COPY

Office Action Summary	Application No.	Applicant(s)	
	10/786,977	ASTHANA, ATUL	
	Examiner	Art Unit	
	Jasmine Song	2188	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 25 February 2004.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) 9-15 is/are allowed.
- 6) Claim(s) 1,3,7 and 8 is/are rejected.
- 7) Claim(s) 2 and 4-6 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 25 February 2004 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 02/25/04&11/21/05.
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____.

Detailed Action

Specification

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification. For example:

In the Specification, page 8, lines 3, "may also me" should be changed to --may also be --.

Drawings

2. The drawings filed on 02/25/2004 have been approved by the Examiner.

Oath/Declaration

3. The applicant's oath/declaration has been reviewed by the examiner and is found to conform to the requirements prescribed in 37 C.F.R. 1.63.

Information Disclosure Statement

4. The information disclosure statement (IDS) submitted on 02/25/2004 and 11/21/2005 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Objections

5. Claim 7 is objected to because of the following informalities:

In claim 7, last line, delete one period at the end of claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1,3,7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eisler et al., US 6,128,713, in view of Inoue et al., US 6,944,861 B2.

Regarding claim 1, Eisler teaches that a mobile device, comprising:

a memory subsystem (it is taught as system memory 122 in the Fig.3);

a processing subsystem (it is taught as processing unit 121) coupled to the memory subsystem (see Fig.3, 121 is coupled to 122) and operable to store and retrieve data in the memory subsystem (it is taught as reading and writing data in physical memory, in the case, it is the RAM in the computer, col.9, lines 65 to col.10, lines 2) and to execute instructions stored in the memory subsystem (col.7, lines 64-67); and

a memory management module stored in the memory subsystem (it is taught as physical memory manager 194 and API implementation 164 in the Fig.4 which is in a

virtual memory system) and executed by the processing subsystem and comprising instructions operable to cause the mobile device (it is taught as the API implementation instructs a physical memory manager to allocate physical memory to the designated code and date, col.11, lines 4-6) to allocate a maximum amount of available data storage memory in the memory subsystem for storing data (it is taught as a maximum amount of RAM that can be locked by an application; col.13, lines 6-24) for each of a plurality of software applications loaded on the mobile device (it is taught as each of a plurality of applications as shown in Fig.4, also see col.13, lines 25-29);

Eisler also teaches that the memory management module being further operable to automatically detect that additional data storage memory is needed (it is taught as a high priority background process detect that there is insufficient physical memory available) for an executing software application (it is taught as a request for physical memory) (col.12, lines 32-37), Eisler teaches **releasing** one of the plurality of software applications from the data storage memory allocated to the selected software application (see col.12, lines 36-37) in accordance with a pre-established memory retention policy for the selected software application (col.12, lines 38-40).

Eisler does not teach selecting one of the plurality of software applications for memory **clean-up, and delete data** from the data storage memory allocated to the selected software application.

However, Inoue teaches selecting one of the plurality of software applications for memory clean-up, and delete data from the data storage memory allocated to the selected software application (col.31, lines 44-53).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the teachings of Inoue into Eisler's system such as selecting one of the plurality of software applications for memory clean-up, and delete data from the data storage memory allocated to the selected software application because it makes efficient use of storage capacity while a program can be executed (see Inoue, col.13, lines 48-56, col.14, lines 14-21 and col.15, lines 4-8).

Accordingly, one of ordinary skill in the art would have recognized this and concluded that they are from the same field of endeavor (both references teaches the memory management such as how to allocate the memory). This would have motivated one of ordinary skill in the art to implement the above combination for the advantages set forth above.

Regarding claim 3, Eisler further teaches a memory allocation and retention table stored in the memory subsystem (it is taught as the structures maintained for each process, see col.13, lines 31-32) and maintained by the memory management module, the memory allocation and retention table identifying the maximum amount of available storage memory for each of the plurality of software applications (col.13, lines 29-33).

Regarding claim 7, Eisler teaches that the memory management module automatically detects that additional data storage memory is needed for an executing software application (it is taught as allowing an application to lock a portion of physical memory) by determining that an amount of stored data in the data storage memory for

the executing software application has reached a pre-established memory threshold value for the executing software application (it is taught as the physical memory manager determines whether the request will cause the amount of memory locked by the application to exceed the maximum amount; col.13, lines 33-37).

Regarding claim 8, Eisler further teaches that the memory management module selected one of the software applications for memory clean-up according a pre-established priority level of the selected software application (col.14, lines 34-39).

Allowable Subject Matter

8. Claims 9-15 are allowed.
9. Claims 2, 4-6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the prior art of record does not teach or suggest that the memory management module is operable to decrease the maximum amount of available data storage memory for the selected software application and proportionally increase the maximum amount of available memory for the executing application as claimed in claims 2, 9 and 15 in combination with the other elements set forth in the claimed invention. Claims 10-14 are allowed because they are depended on the allowable claim 9.

Art Unit: 2188

The prior art of record also does not teach or suggest that the memory allocation and retention table identifies the memory retention policy for the selected software application and for each of the plurality of software applications as claimed in claims 4 and 5 in combination with the other elements set forth in the claimed invention.

The prior art of record also does not teach or suggest that allocating a minimum amount of available data storage memory for storing data for each of the plurality of software application and preventing the maximum amount of available memory for each of the plurality of software applications from being decreased below the allocated minimum amount of available data storage memory as claimed in claim 6 in combination with the other elements set forth in the claimed invention.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hironaka US 2002/0059507 A1

Atherton et al US 7,000,087

11. When responding to the office action, Applicant is advised to clearly point out the patentable novelty which he or she thinks the claims present in view of the state of the art disclosed by the references cited or the objections made. He or she must also show how the amendments avoid such references or objections. See 37 C.F.R. 1.111 (c).

12. When responding to the office action, Applicants are advised to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist examiner to locate the appropriate paragraphs.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jasmine Song whose telephone number is 571-272-4213. The examiner can normally be reached on 7:30-5:30 (first Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mano Padmanabhan can be reached on 571-272-4210. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jasmine Song 
Patent Examiner

April 21, 2006